


## PATENT COOPERATION TREATY

PCT

Rec'd PCT/PTO 24 MAR 2005

INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

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|---|--|---|--|
| Applicant's or agent's file reference<br>PC0045   |  | <b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEAA16) |  |
| International application No.<br>PCT/IB 03/04334  | International filing date (day/month/year)<br>01.10.2003 | Priority date (day/month/year)<br>01.10.2002  |  |
| International Patent Classification (IPC) or both national classification and IPC<br>B62J1/00   |  |   |  |
| Applicant<br>SELLE ROYAL SPA ET AL  |  |   |  |
| <p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 5 sheets.</p>  |  |   |  |
| <p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p> |  |   |  |
| Date of submission of the demand<br><br>20.04.2004  |  | Date of completion of this report<br><br>15.10.2004   |  |
| Name and mailing address of the international preliminary examining authority:<br> European Patent Office - P.B. 5818 Patentlaan 2<br>NL-2280 HV Rijswijk - Pays Bas<br>Tel. +31 70 340 - 2040 Tx: 31 651 epo nl<br>Fax: +31 70 340 - 3016   |  | Authorized Officer<br><br>Denicolai, G<br><br>Telephone No. +31 70 340-3361   |  |



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/B 03/04334

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

**Description, Pages**

1, 2, 5-9 as originally filed  
3, 4 received on 30.09.200<sup>4</sup><sub>3</sub> with letter of 30.09.200<sup>4</sup><sub>3</sub>

**Claims, Numbers**

1-15 received on 30.09.200<sup>4</sup><sub>3</sub> with letter of 30.09.200<sup>4</sup><sub>3</sub>

**Drawings, Sheets**

1/6-6/6 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/IB 03/04334**

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

|                               |             |      |
|-------------------------------|-------------|------|
| Novelty (N)                   | Yes: Claims | 1-15 |
|                               | No: Claims  |      |
| Inventive step (IS)           | Yes: Claims | 1-15 |
|                               | No: Claims  |      |
| Industrial applicability (IA) | Yes: Claims | 1-15 |
|                               | No: Claims  |      |

2. Citations and explanations

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following document/s/:

D1: WO,A,0212055

1)The document D1 is regarded as being the closest prior art to the subject-matter of claim 1 and shows (the references in parentheses applying to this document):

a support structure having a seat surface (7), a frame (2), a padding (3), the frame having one or more differential rigidity portions (2') adapted to facilitate pedalling motion ( see page 6, lines 16-19).

Furthermore said rigidity portions (2') are located in the proximity of an outer peripheral edge of the frame (see figure 7).

The subject-matter of claim 1 differs from this known structure in that said frame has at least one recess (12) along its outer peripheral edge (13) and each of said rigidity portions comprising a plurality of elongated projections (14) extending outwards from said recesses formed in said frame.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

2)The problem to be solved by the present invention may be regarded as to provide the frame with an increased flexibility and high comfort.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons: It does not appear that any available prior art documents suggest to modify the seat of D1 by create a recess on its peripheral edge from which a plurality of projection would extend outwards in order to facilitate pedalling.

Claims 2-15 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

designed to improve the comfort of the seat surface. Any possible rubbing against the inside thighs of the user is attenuated by appropriate swingable means for securing the saddle to the frame of the pedal operated machine. Such swingable fastening means allow the saddle to rotate through a limited angle about an axis  
5 parallel to the longitudinal axis of the saddle. By this arrangement, during the pedaling action, the saddle may rock on the side of the pushing leg and the pressures exerted on the inside thigh are reduced.

A common drawback of all these embodiments consists in the remarkable  
10 complicated structure introduced by the use of these swingable fastening means, and by the consequent increase of construction costs.

WO-A-02/12055 discloses a support structure having all the features mentioned in the preamble of claim 1. However, in this prior art the outer peripheral edge of the  
15 frame is substantially continuous and has a relatively rigid rim which reduces the flexibility of the frame itself. Thus, the support structure disclosed in this prior art cannot reduce the compression in the vicinity of the outer edge of the frame so as to render less comfortable the pedalling motion.

#### 20 Disclosure of the invention

A main object of this invention is to obviate the above mentioned drawbacks, by providing a support structure for a bicycle or other pedal driven machine, which is adapted to fit the muscles of legs and buttocks, and to provide high wellness and  
25 comfort during use.

A further object of the invention is to provide a support structure which has a sufficiently wide seat surface and such a shape as to limit compression both caused by the user's weight and by the pedaling motion, which are exerted in the  
30 inside thigh areas of the user.

A particular object is to provide a support structure which fits users of different statures and sizes.

Another particular object is to provide a support structure which is cost effective  
5 and achieve the desired performances without requiring expensive additional elements or excessive by complicated constructions.

Yet another particular object is to provide a support structure which is comfortable and safe even when the user stands on the pedals of the bicycle or the like.

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An additional object is to provide a support structure that may be shaped in such a manner as to have a pleasant aspect.

These objects, as well as others that will be more apparent hereinafter, are  
15 achieved by a support structure according to claim 1. Thanks to such particular arrangement the support structure may fit the muscles of legs and buttocks and provide a high wellness and comfort, even to users having different body sizes, and without requiring expensive additional elements or excessive by complicated structures.

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Preferably, the frame has at least one pair of differential rigidity portions, located at the sides, symmetrically with respect to the longitudinal axis which is defined by an elongated front portion of the frame.

25 Thanks to this particular configuration, the support structure will have a sufficiently wide seat surface of such a shape as to limit the compressions caused by the user's weight and, at the same time, will have a local flexibility to also reduce the compressions and rubbing caused by the pedalling motion, in the inside thigh areas of the user.

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Suitably, at least one differential rigidity portion is located on the rear edge of the frame.

AMENDED CLAIMS

1. A support structure having a seat surface (2), particularly for bicycles and other pedal operated machines, comprising a substantially rigid or semirigid frame (3), means (4) for securing said frame (3) to the bicycle or a pedal operated machine, a yieldable pad (7) secured to the top face of said frame (3), a covering layer (8) superimposed to the yieldable pad (7), said frame (3) has one or more differential rigidity portions (11, 11') adapted to facilitate the pedaling motion, said differential rigidity portions (11, 11') being located in the proximity of an outer peripheral edge (13) of said frame (3), characterised in that said frame (3) has at least one recess (12) along its outer peripheral edge (13), each of said differential rigidity portions (11, 11') comprising a plurality of elongated projections (14) extending outwards from their respective recesses (12) formed in said frame (3).

2. Support structure as claimed in claim 1, characterized in that said projections (14) have free ends (16).

3. Support structure as claimed in claim 2, characterized in that said projections (14) of each of said differential rigidity portions (11, 11') extend substantially parallel to one another so as to form a comblike structure.

4. Support structure as claimed in claim 3, characterized in that each of said projections (14) of each of said differential rigidity portions (11, 11') is located at a predetermined distance (H) from the other projections adjacent thereto, which distance may vary for each projection (14).

5. Support structure as claimed in claim 4, characterized in that each of said differential rigidity portions (11, 11') comprises filling elements (15) within the spaces between said projections (14).

6. Support structure as claimed in claim 5, characterized in that the base material of said filling elements (15) is a plastic and/or elastomeric material.

7. Support structure as claimed in claim 6, characterized in that the free ends (16) of said projections (14) are substantially aligned to define an edge (17) which is connected with said outer peripheral edge (13) of said frame (3).

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8. Support structure as claimed in claim 1, characterized in that each of said projections (14) has a flexural and shear strength depending on the load direction.

9. Support structure as claimed in claim 8, characterized in that each of said  
10 projections(14) has such a cross section and shape as to provide a predetermined flexural and shear strength, relative to load activity both substantially normal to said seat surface (2), and along a plane substantially parallel to the seat surface (2).

15 10. Support structure as claimed in claim 1, characterized in that said projections (14) are monolithic with said frame (3).

11. Support structure as claimed in one or more of the preceding claims, characterized in that said frame (3) has a laterally widened rear portion (9) for  
20 supporting the buttocks of a user and an elongated front portion (10) defining a longitudinal axis (L).

12. Support structure as claimed in claim 1, characterized in that it comprises at least one pair of said differential rigidity portions (11), symmetrically located with  
25 respect to said longitudinal axis (L).

13. Support structure as claimed in claim 12, characterized in that said symmetric pair of differential rigidity portions (11) is located at the sides of said widened rear portion (9) and/or at the junction between said widened rear portion  
30 (9) and said elongated front portion (10).



14. Support structure as claimed in claim 13, characterized in that at least one of said differential rigidity portions (11') is located on the rear edge (18) of said widened rear portion (9).

5        15. Support structure as claimed in one or more of the preceding claims, characterized in that said yieldable pad (7) and/or said covering layer (8) have such an extension as to wholly or partly cover said differential rigidity portions (11, 11').

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